



Lambe
THE ATHERTON URBAN DISTRICT COUNCIL.

ANNUAL REPORT

OF THE

MEDICAL OFFICER OF HEALTH

FOR THE YEAR 1896.



Mr Chairman and Gentlemen,—I now have the honour of presenting you with my annual report for the year 1896.

POPULATION AND AREA OF THE DISTRICT.—The population for the year was estimated at 15,000, which has been apportioned among the three divisions of the district as follows:—Chowbent, 10,280; Hindsford, 2,935; and Howebridge, 1,785. The area of the district in acres is 2,269, and in square miles 3.54. This gives a population of 6.6 to the acre, and 4,237 to the square mile.

BIRTH-RATE.—There were 598 births registered during the year, of which 307 were males, and 291 females. This gives a birthrate of 39.86 per 1000 of the population, which exceeds that of the previous year, and is the highest since 1893. The birth-rates for the past five years were—1891, 41.07; 1892, 40.37; 1893, 40.2; 1894, 39.51; and 1895, 38.78 per 1000 respectively.

DEATH-RATE.—During the year 342 deaths occurred within the district, including 62 in the workhouse, nine of which belonged to Atherton. Excluding the deaths which occurred in the Workhouse, it gives a deathrate for the year of 18.6 per 1000, and including the nine workhouse deaths belonging to the district the deathrate for the year was 19.26 per 1,000. Of the deaths which took place in the workhouse 38 belonged to Leigh (U.) 4 to Leigh (R), 9 to Tyldesley, 1 to Golborne, and 1 to Standish. The above deathrate is higher than that of the previous year, and considerably above that of 1894. The deathrates for the five previous years were—1891, 24.05; 1892, 17.5; 1893, 20.7; 1894, 16.08; and 1895, 18.91 per 1,000 respectively. The county urban deathrate for 1895 was 19.63.

Of the above 280 deaths (excluding the workhouse) 177 occurred in Chowbent, giving a deathrate of 17.21; 51 in Hindsford, giving a deathrate of 17.37; and 52 in Howebridge, giving a deathrate of 29.13 per 1,000.

CAUSES OF DEATH.—Excluding those due to the seven principal zymotic diseases, the causes of death during the year were—Bronchitis 35, pneumonia 25, membranous croup 2, puerperal fever 1, phthisis 13, heart disease 25, injuries 5, other causes 125.

The causes of death in the Workhouse belonging to other districts were—Bronchitis 16, phthisis 3, typhoid fever 1, heart disease 1, diarrhoea 1 other causes 30.

INFLUENZA.—No death from this disease occurred during the year, the disease not being prevalent in the district.

PHthisis.—During the year 16 deaths resulted from phthisis, 4 of which occurred in the workhouse. One of the workhouse deaths belonged to Atherton, and, excluding the three belonging to other districts, it gives a deathrate of 0.86 per 1000, which is below that of the five previous years, the deathrates for these years being—for 1891, 1.64; 1892, 1.0; 1893, 1.22; 1894, 1.04; and for 1895, 0.94 per 1000. Of the above deaths 10 belonged to Chowbent, 1 to Hindsford, and 2 to Howebridge. The urban deathrate of the county from this cause for 1895 was 1.34.

RESPIRATORY DISEASES.—During the year 76 deaths were registered as having resulted from diseases of the respiratory organs, of which 17 occurred in the workhouse, one of which belonged to Atherton. Excluding the workhouse deaths belonging to other districts, this gives a deathrate for the year of 4.0 per 1000, which is considerably below that of last year, and is the lowest recorded during my term of office, the deathrates for the four previous years being—for 1892, 4.12; 1893, 4.23; 1894, 4.54; and for 1895, 5.4 per 1000. The County Urban deathrate for 1895 was 4.07. Deaths from respiratory diseases occurred during each month of the year, but the heaviest mortality took place during the months of June, August, and November, 10 deaths being registered in each of those months from these causes.

Of the above deaths 36 occurred in Chowbent giving a deathrate of 3.5; 13 in Hindsford, giving a deathrate of 4.4; and 11 in Howebridge, giving a deathrate of 6.1 per 1000.

PUERPERAL FEVER.—Two cases of this disease occurred in the district during the year, one of which ended fatally. It is a common practice among midwives in these districts to attend upon and lay out the dead, and I believe this is done irrespective of the cause of death. I am of opinion that no midwife who performs this kind of work should at the same time attend women in the puerperal state. I believe puerperal fever has been conveyed in this way, and I recommend the Council to call the attention of all the midwives practising in the district to this important point.

ERYSIPelas.—During the year 28 cases of this disease were reported, but no death occurred.

ZYMOtic DEATH-RATE.—The seven principal zymotic diseases caused 58 deaths during the year. Two deaths also occurred in the workhouse, but they belonged to another district. This gives a death-rate of 3.86 per 1,000 which is higher than that of last year, and also slightly above the average of the previous five years, the death-rate for these years being:—1891, 2.23; 1892, 2.25; 1893, 4.96; 1894, 1.53; and 1895, 3.31 per 1,000. The rise in the zymotic death-rate was due to the large number of deaths from measles, the death-rate from the remaining zymotic diseases being low.

The following table shows the number of deaths resulting from each zymotic disease. The numbers for the six previous years are also given for comparison:—

	1896.	1890.	1891.	1892.	1893.	1894.	1895.
Small-pox	...	nil	nil	nil	nil	nil	nil
Scarlet Fever	3	11	17	3	12	1	2
Diphtheria	...	nil	2	2	2	nil	1
Whooping Cough	3	4	11	10	1	nil	17
Diarrhoea	...	13	20	6	13	48	9
Fever (Typhoid & Continued)	5	3	2	7	6	2	7
Measles	...	34	nil	44	1	14	9

Total 58 40 82 36 81 22 48

Of the above 58 deaths, 33 occurred in Chowbent giving a death-rate of 3.21; 14 in Hindsford, giving a death-rate of 4.77; and 11 in Howebridge, giving a death-rate of 6.16 per 1,000 respectively.

The following table shows how the zymotic deaths were distributed among the three divisions of the district:—

	Small-pox	Scarlet Fever	Whooping Cough	Diphtheria	Diarrhoea	Fever	Measles	Total's
Chowbent	nil	2	1	nil	9	4	17	33
Hindsford	...	nil	nil	1	nil	0	11	14
Howebridge	nil	1	1	nil	2	1	6	11
—	—	—	—	—	—	—	—	—
Totals.....	nil	3	3	nil	13	5	34	58

SMALLPOX.—The district remained free from this disease throughout the year.

SCARLET FEVER.—This disease was present in the district more or less throughout the year. February was the only month during which no cases were notified. Two cases, however, occurred in the workhouse during that month, but they did not belong to the district. The disease was most prevalent during May when ten cases were reported. In several cases the disease seemed to have been spread from house to house by direct communication, while in two cases a shop in which the disease broke out appeared to be responsible. I am of opinion that children who have suffered from scarlet fever are as a rule allowed to mix with the healthy too early after an attack of the disease. I believe very few are kept isolated for the recognised period of six weeks, and in my opinion even that length of time is too short except perhaps in the very mild cases. It is a very difficult matter to impress upon parents the necessity of an adequate period of isolation hence the disease spreads. All children from infected houses were forbidden to attend school, and each house was disinfected upon the termination of the case. During the year 47 cases were reported, also two which occurred in the workhouse. Three deaths resulted from the disease which gives a death-rate for the year of 0.2 per 1000 as compared, 0.73 in 1893, 0.07 in 1894, and 0.13 in 1895. It also gives a case mortality of 6.3 per cent of those attacked as compared with a mortality of 7.1 per cent in 1893, 2.56 per cent in 1894, and 7.6 per cent in 1895. The county urban death-rate from this disease in 1893 was 0.43, 1894 0.28, and 1895 0.25, and the case mortality in 1893 was 7.5 per cent, in 1894 6.3 per cent, and in 1895 4.8 per cent.

DIPHTHERIA.—Twelve cases of diphtheria occurred within the district during the year. The disease broke out in Mealhouse-lane in March, and during that month eight cases were reported in that street. The sanitary condition of the premises were examined but no defects of any importance were discovered, and it appears that the disease was spread at least to some extent through neighbours visiting the infected house. The remaining four cases all occurred in different parts of the district and had no connection with each other. The cases were all evidently of a mild type as no death resulted. Upon my recommendation the Council has been enrolled as a member of the Clinical Research Association of London, and cul-

ture outfit have been supplied for taking cultivations from the throat in cases of suspected diphtheria. It is hoped that the medical men of the district will assist the Council by taking specimens of the throat secretion in suspicious cases, as it is important and more satisfactory both to the authority and all concerned that when the disease occurs its true nature should be elucidated, more especially in view of the increased prevalence of this disease in towns during recent years. A culture outfit can be had on application to the Sanitary Inspector or myself.

WHOOPING COUGH.—Cases of whooping cough occurred in various parts of the district during the year, but the disease did not assume an epidemic form. A few cases came to our knowledge during December, and an enquiry was made at all the schools in reference thereto, but it was found that the disease was not very prevalent and that no children were away from school in consequence thereof. Three deaths resulted from the disease during the year, giving a death-rate of 0·2 per 1000, which is very much below that of the previous year when it was 1·14 per 1000.

DIARRHEA.—Diarrhea was not so prevalent in the district as during the previous year, the meteorological conditions of the autumn months being unfavourable to the development of the disease. There were 14 deaths from diarrhea, one of which occurred in the workhouse but did not belong to the district. During the previous year 22 deaths resulted from this disease. The heaviest mortality occurred during the latter end of the month of July. The death-rate for the year from this disease was 0·86 per 1000, which is considerably below that of the previous year when it was 1·48 per 1000. Of the above 13 deaths nine occurred in Chowbent giving a death-rate of 0·87, two in Hindsford giving a death-rate of 0·68, and two in Howe Bridge giving a death-rate of 1·12 per 1000. Improper feeding, inattention and want of cleanliness, especially in the case of hand-fed children, are undoubtedly important factors in the causation of this disease. Notwithstanding the advancement of knowledge and the increased facilities that now exist for the spread of that knowledge, mothers especially among the working classes do not seem to benefit thereby, and all sorts of indigestible substances are given to infants even when they are fed at the breast. That want of due care in the feeding of very young children operates as a cause of this affection is, I think, at any rate to some extent, borne out by the fact that the large majority of deaths from diarrhea occur among infants under one year of age as the following table shows—

	Total deaths	Children from Diarrhea.	under one year.
1892	...	13	11
1893	...	48	36
1894	...	9	5
1895	..	22	18
1896	...	13	10

Insanitary surroundings and a polluted soil offer conditions favourable to disease. The temperature of the subsoil also bears an intimate relation to the occurrence of diarrhea. The temperature of the ground at a depth of four feet has been recorded weekly, and the following table gives the dates upon which a change of temperature was noted in July, August, and September, and the temperature recorded at the end only of the remaining months of the year:—

January 28th	42 deg.	July 21st	55 deg.
February 25th	42	August 25th	54·5
March 31st	42·5	September 1st	54
April 28th	45	22nd	53·5
May 26th	49	29th	53
June 30th	53·5	October 27th	47
July 7th	54	November 25th	45
„ 11th	54·5	December 29th	41

The four foot earth thermometer during last summer did not rise above 55 degrees, which was the same as the maximum temperature recorded during the previous summer, only it reached that point on July 21st, or sixteen days earlier than during the latter year. It remained at this point till August 18th, or about twenty-eight days, whereas during the summer of 1895 this temperature was maintained till the first week in October, or for a period of about fifty-six days.

The dry and hot weather of the early summer accounts for the maximum ground temperature being reached so early as July 21st. And the heavy fall of rain together with the lowering of the atmospheric temperature during the latter part of the summer and the autumn was the cause of the early fall

thereof. The summer rise in the mortality from diarrhea does not occur until the four foot earth thermometer reaches about 56 degrees. The first death from diarrhea occurred in the last week of June, while between July 23rd and August 18th eleven of the thirteen deaths due to this disease were registered, that is during the period when the four foot earth thermometer stood at its maximum.

MEASLES.—The district suffered from a widespread epidemic of this disease during the year. It broke out in Chowbent in December, 1895, and became slightly epidemic. Owing to the closure of the schools for the Christmas holidays the disease abated, but soon after they re-opened it commenced afresh. It soon spread over the whole of Chowbent, and about the middle of February extended to Hindsford. In the middle of July the disease visited Howebridge and became epidemic there. Isolated cases continued to crop up in various parts of the township until about the end of August, after which the district was free from the disease. I have no means of ascertaining the exact number of children who suffered from measles during the epidemic, but on careful investigation 340 houses were discovered in which cases occurred. The Inspector visited each of these houses and cautioned the parents against spreading the disease. Children from infected houses were excluded from school in all cases. Owing to the rapid spread of the disease in Hindsford in the beginning of March, the schools there were closed for a fortnight, and for the same reason the schools in Howebridge were closed for midsummer holidays a fortnight earlier than usual, and the holidays were extended to five weeks. Measles is generally regarded by parents, especially among the working classes, as a trivial disease, proper isolation is the exception and not the rule, medical advice is generally sought in the severer cases only, children suffering with the disease allowed to mix with the healthy and to run about even out of doors, regardless of the risk of the superintention of chest complications, the development of which such exposure favours. Hence the disease spreads, and the gravity thereof becomes apparent when it is remembered that 28 per cent., or more than one-fourth of the deaths from the seven principal zymotic diseases during the past seven years in Atherton, were due to measles alone. Measles is unlike scarlet fever, because it commonly disappears altogether from a district, while isolated cases of the latter are constantly cropping up. Measles visits a district at intervals, and assumes an epidemic form. How are these epidemics to be controlled? There is no doubt the day school is an important centre from which infection spreads. It is a very infectious disease, and infection is given off from a patient before the disease becomes fully developed, and before its true nature can be satisfactorily ascertained. Then, in most districts there is no means of bringing the first cases to the knowledge of the medical officer of health. The infection is carried to the schools, from whence it spreads in all directions, and an epidemic becomes fairly established before the officer of health is aware of it, and it frequently happens that the chief mischief is done before the necessary steps can be taken to obtain school closure. Owing to the early infectiousness of the disease and the apparent impracticability of general hospital isolation, I do not feel justified in recommending the Council to make an order that the Notification Act of 1889 should apply to this disease, but if some modified method of notification could be devised whereby the first cases occurring in a district, or the first case in a family, could be reported, it would give the Medical Officer of Health early information respecting a threatened outbreak, he could be on the alert, rigidly exclude children living in infected areas from school, or cause the schools to be closed, as the necessities of the case seemed to demand.

Thirty-four deaths resulted from this disease during the year, which gives a death-rate of 2·26 per 1,000. Of the above deaths 17 occurred in Chowbent, giving a death-rate of 1·65; 11 in Hindsford, giving a death-rate of 3·74; and 6 in Howebridge, giving a death-rate of 3·36 per 1,000.

FEVER (including Typhoid and Continued).—Fever was somewhat more prevalent in the district than during the previous year, and the largest proportion of the cases occurred in Chowbent. The neighbourhood of Mealhouse-lane and John-street suffered most from the disease, 10 cases being reported in the former and 4 in or near the latter. A pail containing a solution of bi-chloride of mercury was left at each house for the reception of the excreta. These were regularly removed and their contents destroyed. Each house was visited and its sanitary condition enquired into, with the result that in several cases defective waste water

pipes and traps were found. These defects have been remedied. In one case the closet was found to be only about four feet from the house, and was a nuisance. Steps are being taken to have this and all others in the same row converted into water closets.

Fever caused 5 deaths during the year, which gives a death-rate of 0.3 per 1,000, and a case mortality of 12.1 per cent. of those attacked. Both these rates are below those of the previous year. In 1893 the death-rate was 0.36, and the case mortality 12.2 per cent.; in 1894, 0.14 and 15.38; and in 1895 0.47 and 18.9 per cent. respectively. In 1893 the county death-rate from fever was 0.28 and the case mortality 27.5; in 1894 it was 0.22 and 17.3 per cent.; and in 1895, 0.23 and 18.4 per cent.

INFANT MORTALITY.—During the year there died 80 infants under one year of age, which gives a proportion of 13.4 deaths to 1,000 births registered, a mortality which is considerably below that of last year, and also below the average of the past twelve years. The infant mortality for 1892 was, 12.5 deaths; for 1893, 16.6 deaths; for 1894, 13.9 deaths; and for 1895, 17.2 deaths to 1,000 births respectively. The causes of death among the infants during the year were:—Bronchitis 8, dentition and convulsions 6, diarrhoea 10, measles 10, membranous croup 1, pneumonia 7, premature birth 6, scarlet fever 1, tubercular diseases 1, whooping cough 1, other causes 29. Twenty-six children were buried as still-born during the year.

In the next table the different death rates of the three divisions of the district are compared:—

	General.	Zymotic.	Phthisis.	Diseases	Respir'ty
Chowbent	17.21	3.21	0.97	3.5	
Hindsford	17.37	4.77	0.34	4.4	
Howebridge	29.13	6.16	1.12	6.1	

This table shows that the death-rates of Howebridge for the past year are all very excessive. The death-rate varies very much in that locality from year to year, and if we take an average of these death-rates for the past four years they compare as follows:—

	General.	Zymotic.	Phthisis.	Diseases	Respir'ty
Chowbent	18.34	3.01	1.22	4.42	
Hindsford	19.04	4.61	0.87	5.01	
Howebridge	18.43	4.31	0.42	4.75	

NOTIFICATION OF INFECTIOUS DISEASE.—During the year there were 138 cases of infectious disease notified, the largest number reported since 1893. The increased prevalence of scarlet fever and diphtheria accounts chiefly for this. The infected houses were all visited and careful enquiry made as to the origin of the disease and the sanitary condition of the premises. Disinfectants were freely supplied, and isolation was maintained as well as possible. Under section 14 of the Infectious Diseases (Prevention) Act 73 notices were served during the year. The following table shows the number of cases notified, and for comparison the numbers for the four previous years are also given:—

No notified					
Disease.	in 1896	in 1892	in 1893	in 1894	in 1895
Smallpox	nil	1	3	nil	nil
Scarlet Fever	47	48	169	39	26
Diphtheria	12	4	nil	8	nil
Typhoid Fever	33	16	47	9	31
Continued Fever	8	3	2	4	6
Erysipelas	28	23	14	33	26
M'branous Croup	8	3	4	1	2
Puerperal Fever	2	1	4	3	nil
Totals	138	99	243	97	91

The numbers shown above to have been notified during the years 1892 and 1893, include cases reported in the Leigh end of Atherton, which now forms a part of Leigh. If these be deducted therefrom the total numbers will compare as follows:—

Notified in 1896	Notified in 1892	Notified in 1893	Notified in 1894	Notified in 1895
138	79	235	97	91

The next table shows the distribution of the cases notified amongst the three divisions of the district:—

	Notified in Chowbent	Notified in Hindsford	Notified in Howebridge
Smallpox	nil	nil	nil
Scarlet Fever	33	8	6
Diphtheria	11	nil	1
Typhoid Fever	28	3	2
Continued Fever	7	1	nil
Erysipelas	23	3	2
Membranous Croup	6	1	1
Puerperal Fever	1	1	nil
Totals	109	17	12

Thus, in Chowbent 10.6 per 1,000 of the population suffered from the above diseases, in Hindsford 5.7, and in Howebridge 6.7 per 1,000. Chowbent had the largest proportion of infectious cases, and the increased prevalence of Scarlet and Typhoid Fevers and diphtheria accounts for this. The proportion per 1000 attacked with Scarlet Fever was in Chowbent 32, in Hindsford 27, and in Howebridge 33. The proportion attacked with Typhoid Fever was in Chowbent 27, in Hindsford 1.0, and in Howebridge 1.1 per 1000.

INFECTIOUS HOSPITAL AND ISOLATION.—Owing to the accommodation at Astley Hall being at present only of a temporary character, and the difficulty experienced in effectually isolating more than one kind of infectious disease, the Joint Hospital Board decided last year to receive cases of scarlet fever only for treatment. The contracts for the new blocks and the necessary alterations to the present buildings have been let, and considerable progress has already been made with the work, so much so that it is expected that the new wards will be completed and ready for occupation next year. Only two cases of scarlet fever were removed to the Sanatorium from Atherton last year. This represents an exceedingly small proportion of the cases, and it is hoped that parents will soon come to realise the value of the institution and allow their children to be removed there, not only for the benefit of the remaining members of their own family but as a means of protecting the public also against the disease.

DISINFECTION.—Care has been exercised in the disinfection of houses &c. during the year. Ninety-one houses were fumigated with sulphur, and eighty-nine beds and mattresses removed to the disinfecting chamber and disinfected therein. Seven schools were each fumigated three times during the prevalence of Measles in the district.

SANITARY WORK.—During the year I reported a nuisance caused by a defective ashpit and the keeping of pigs in too close proximity to a dwelling-house, contrary to the bye-laws. A notice was served, and the nuisance was abated. After careful inspection I recommended that the houses Nos. 1 to 13 (odd numbers) The Valley, and Nos. 3, 12, 14, 23, and 29, Harrison-street, should be closed, as being in their present condition unfit for human habitation. The Council ordered their closure, and it was complied with. The factories have been visited, and in four of the ten referred to in my last annual report as being in a bad sanitary state, new closets have been substituted, and they are now in a perfectly satisfactory condition. In the remaining six the recommendations are not yet completed. In all 59 nuisances were reported during the year, of which 52 were abated after notice was served, and seven remained unabated at the end of the year. Twenty-six nuisances were abated upon calling the attention of the responsible parties to them, and without the necessity of serving a notice. The above nuisances consisted of defective closets, ashpits, sink pipes, drains, and untrapped gullies. Twenty-one notices were served under the Public Health Act, 1875, to lime wash houses, and in each case the notice was complied with.

SMOKE NUISANCE.—Fourteen observations were made during the year, and the length of time that black smoke was emitted varied from 4 to 9 seconds. The owners were cautioned.

BAKEHOUSES.—The bakehouses have all been inspected during the year, and were found to be in satisfactory condition, except three which required lime-washing. This has since been done.

LODGING HOUSES.—There is only one common lodging house in district. This has been inspected from time to time and found to be kept in a very clean and satisfactory state. The Sanitary Inspector has from time to time paid surprise visits at midnight. One of these visits was made on April 15th last, when the house was found to be overcrowded. A summons was taken out against the keeper, and heard at the Leigh Police Court, with the result that a fine of 10s and costs was inflicted.

SLAUGHTERHOUSES.—The slaughterhouses have been inspected, and on the whole were found to have been kept in a cleaner and more satisfactory condition than last year. One only required lime-washing. A notice was served and the work was done. We found, however, that the bye-laws were not carried out properly with reference to the disposal of offal, garbage, &c. I have twice reported this matter to the Council, and had occasion to refer to it in my last annual report. Upon the occasion of my last report your Council caused notices to be served upon the offending occupiers,

and the Inspector has since reported to me that the offal is now regularly removed, and that there is at present no cause for complaint.

DAIRIES, COWSHEDS, AND MILKSHOPS.—These have all been visited during the year by myself. At one farm the shippons were found to be in a very dirty condition. A report was made to the Council, a notice served upon the occupier, and the Inspector reports that on a subsequent visit he found them in a more satisfactory condition. Two others were found to require limewashing, which has since been done. The remainder appeared to be kept in a fairly satisfactory state. Milk is a very important article of diet, and perfect cleanliness is a very important factor in the production of a wholesome supply. The importance of cleanliness in the cowshed, of the cow itself and especially the udder, of the hands of the milker, of the utensils used for its reception and distribution is not sufficiently realised by dairymen. The excreta is not removed often enough from the shippion, and the work is seldom thoroughly done, for I believe the floor is scarcely ever properly cleansed with water. Limewashing is not always attended to as it should be. Dust is allowed to collect on the walls and deposit thickly on the window sills and all surfaces capable of receiving it. Greater attention ought to be paid to these important matters, and with a view to secure this a more frequent and a more rigid inspection should be instituted. Eleven samples of new milk were taken during the year, and submitted to the County Analyst. Two of those taken during August were reported to be adulterated with water. A summons was issued in each case, but they were dismissed on the payment of costs.

SCAVENGING AND DISPOSAL OF NIGHTSOIL AND HOUSE REFUSE.—The public streets have been swept and the sweepings removed by the Council's own men. No cause of complaint with regard to the manner in which the work has been done has arisen during the year. The nightsoil and house refuse is also removed by the Council's workmen at the expense of the rates, and no difficulty has been experienced in disposing thereof. The number of ashpits emptied during the year was 2,857. In many of the older houses there is no back passage of sufficient width to admit of the removal of the nightsoil therefrom, and the contents

of some 228 ashpits have to be wheeled into the front streets when emptied. Many of them are very near the houses and in small and confined back yards. They pollute both soil and air, and are a constant danger to the public health. They should be converted into water closets with as little delay as possible. The waste water closets are satisfactory, and we now have 450 of them in the district. Of these 97 have been constructed during the year, including 44 which have been converted from the privy system.

SEWERAGE AND DRAINAGE.—The sewers and drains have been examined from time to time, and generally found to be in a satisfactory condition; where defects were discovered they were immediately remedied. New sewers to the length of about 1,000 yards have been laid during the year. There are now six automatic tanks in the district, and the sewers have been regularly flushed. Several manholes were complained of during the summer as being offensive, and upon my recommendation special filters were made for the manholes, and the effect has been satisfactory. The furnace constructed last year in connection with the factory chimney in the Valley has been discontinued because upon testing it the results obtained with regard to the ventilation of the Valley sewer were not in proportion to the expense incurred in the maintenance thereof. The chimney however is still connected with a sewer, and acts as an ordinary ventilating shaft. The sewage is still treated at the Hindsford and Glass House works, and the effluent obtained has been fairly good. Satisfactory progress has been made with the scheme of the Joint Sewerage Board, and it is expected that the work will be completed in about twelve months, when the sewage of the district will be treated in a more efficient manner upon the farm of the Joint Board.

WATER SUPPLY.—The water supply throughout the year was constant in quantity and good in quality.

I am, Gentlemen,

Your obedient servant,

JAS. T. NEECH, L.R.C.P., Ed., D.S.Sc.,
Medical Officer of Health,

Atherton, March 10th, 1897.



